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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF BURK'S FALLS

DISTRICT OF PARRY SOUND

1967

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VILLAGE OF BURK'S FALLS - 1967  
DISTRICT OF PARRY SOUND

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Report on a water pollution  
survey of the village of Burk's  
Falls, district of Parry Sound /

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Report

on a

Water Pollution Survey

of the

VILLAGE OF BURK'S FALLS

District of Parry Sound

December 1967

District Engineers Branch

Division of Sanitary Engineering

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# R E P O R T

## ONTARIO WATER RESOURCES COMMISSION

### I INTRODUCTION

The purpose of this survey was to locate and record significant sources of water pollution within the Village of Burk's Falls. Surveys of this nature are conducted routinely and upon request throughout the Province of Ontario and form a basis for evaluating any existing or potential sources of pollution. When sources of pollution are found the Commission expects that corrective action will be taken by those concerned.

### II GENERAL

The Village of Burk's Falls in the District of Parry Sound has a population of 1,070 (1967 Municipal Directory). The village is located on Highway No. 11 on the Magnetawan River watershed approximately 60 miles south of the City of North Bay and covers an area of 641 acres.

### III DRAINAGE AND TOPOGRAPHY

The Village of Burk's Falls is drained to the Magnetawan River (north and south branches) via storm sewers and drainage ditches. Pertinent sampling point locations were established at the outfalls of these drainage conduits.

The overburden is predominantly clay with pockets of gravel and sand. The elevation slopes to both branches of the Magnetawan and is quite severe in places. Main Street is the approximate high

point and the area east of Main Street flows to the south branch while west of Main Street is drained to the north branch.

#### IV WATER USES

##### (1) Recreational

The Magnetawan River in the vicinity of Burk's Falls is used extensively for boating, swimming and fishing and is one of the major tourist attractions to the area.

##### (2) Domestic

Water for the village is obtained from a drilled well and is directed without treatment to a standpipe and the distribution system. The municipality has retained International Water Supply Limited for the development of a supplementary well supply.

The available results of the laboratory analyses indicate that the water is satisfactory for use as a domestic supply.

#### V WATER POLLUTION

##### (1) Sanitary Waste Disposal

(a) Existing Conditions - There are no municipal water pollution control plants. Domestic wastes are treated in private sewage disposal systems. In most instances, these units were installed without approval or final inspection. The predominance of impermeable soil conditions on some lots and the topography of the area presents difficulties in sewage disposal. In areas where there are pockets of sand and gravel, malfunctioning sewage disposal systems are probably due to inadequate construction.

The results of the laboratory analyses and conditions noted during the investigations confirm sewage contamination of the drainage conduits.

(b) Proposed Water Pollution Control Facilities - A provincial sewage works programme (Sp. 67-65) for the village has been initiated. At the time of the writing of this report the review of the consulting engineer's preliminary report has been completed by the Commission.

(2) Industrial Waste Disposal

Industries in the village consist of a saw mill and a veneer plant. The veneer plant, D.A. Clarke Veneers Limited, produces the only liquid industrial waste. This liquid results from the twice yearly dumping of a 10,000 gallon log soaking vat. Due to the infrequent dumping schedule and the limited volume of the waste which is reportedly removed to the municipal refuse disposal site no significant pollution problems should result from this operation.

(3) Pleasure Craft

Pollution from pleasure craft in the area is reportedly not a critical problem. The occasional problem of dumping of debris directly into the water is primarily one of esthetics and its correction requires the support of all individual boat owners.

To assist in assuring that boaters and the public will continue to enjoy clean recreational waters in Ontario, a regulation providing for control of the discharge of sewage from pleasure boats



into any water in the Province has been made under the Ontario Water Resources Commission Act. The regulation which comes into effect on June 1, 1968, provides that any pleasure boat having sleeping accommodations, must be equipped with a marine toilet and an approved device which will store or dispose of human sewage. The discharge of such sewage from these pleasure boats and the installation of the toilet and the approved device are also controlled by the regulation to ensure that sewage is prevented from entering any waters.

#### (4) Refuse Disposal

The village operates a refuse disposal site at part of Lot 9, Concession 8, Township of Armour. The site is sufficiently isolated from any watercourse to prevent surface-water pollution and there does not appear to be any serious threat to the ground-water quality.

### VI DISCUSSION OF LABORATORY ANALYSES

The location of the sampling points are shown on the enclosed map and the laboratory results and their significance are recorded in the appendices.

#### (1) Sources of Pollution

All of the major drainage conduits in the village were polluted. The impairment is apparently due to illegal sewage connections to municipal storm sewers or drainage ditches. The incidence of excessive coliform counts and a high degree of organic

contaminants present in the majority of the sampling point locations indicate a generally unsatisfactory condition.

The appended tables contain a description of all of the sampling point locations and an estimate of the dry weather flow in the storm sewers.

Several of the locations are of particular significance:

1. Sampling points ML-78.28, ML-78.25 and ML-78.0 are pertinent to the waste disposal problems at the Smith Coin Laundry. Waste from this premises is directed to a septic tank system and during periods of heavy flow the excess is pumped to a holding pond. Overflow from the pond (sampling point No. ML-78.25) showed excessive bacterial and organic impairment and caused residual impairment extending to the confluence point (ML-78.0) of the receiving stream with the Magnetawan River. The satisfactory condition of the receiving stream upstream from the holding pond (ML-78.28) emphasizes the impairment of the watercourse from this source.
2. The laboratory results of samples taken at locations MH-77.7W, MH-77.84W, MH-77.6W indicate the presence of phenolic waste. The sources of these phenolic compounds were observed to originate from service stations along Ontario Street. The municipality should inform these premises of the necessity of providing settling and removal of the contaminating waste. These service stations should be notified immediately that grease and oil are not suitable for discharge to the proposed sanitary sewers.

## VII SUMMARY

A water pollution survey was conducted in the Village of Burk's Falls during the summer of 1967.

Significant sources of pollution were found in the majority of the drainage outfalls. The completion of the proposed water pollution control project will provide adequate treatment facilities. There are several gasoline service stations in the village which are discharging contaminating phenolic wastes to the storm drains.

When the treatment facilities are completed the municipality should adopt enforceable regulations to encourage the prompt connection of offending premises to the sanitary sewers. Also the village should inform the service stations that some method of grease and oil removal (grease and oil traps) will be required prior to discharge of other than domestic sewage to the sanitary sewers.

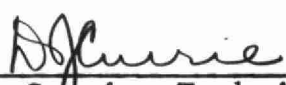
## VIII RECOMMENDATIONS

1. The Village of Burk's Falls should adopt enforceable regulations to encourage the prompt connection of all offending premises to the forthcoming water pollution control facilities.

2. The local service stations should be encouraged to provide grease and oil removal facilities.

/elc

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## EXPLANATION AND SIGNIFICANCE OF LABORATORY ANALYSES

### A Bacteriological Examination

Bacteriological examinations were performed on samples from the watercourse. The Membrane Filter technique was used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warm blooded animals. They are always present in sewage and are generally minimal in other pollutants. The results of the examinations are reported as M.F. Coliform count per 100 ml.

The Commission's objective for surface waters in Ontario is a coliform count of not greater than 2,400 organisms per 100 ml.

### B Chemical Analysis

The chemical analysis performed on stream and outfall samples included determinations for biochemical oxygen demand, suspended solids and in some instances turbidity.

#### (1) Biochemical Oxygen Demand (BOD)

Biochemical oxygen demand is reported in ppm and is an indication of the amount of oxygen required for stabilization of decomposable organic matter present in sewage, polluted waters or industrial wastes. The completion of the test requires five days, under the controlled incubation temperature of 20°C.

The Commission's water quality objectives are (1) for stream water - a 5-day BOD of not greater than 4 ppm. (11) for storm sewer, sewage treatment plant and industrial waste discharges

- a 5-Day BOD of not greater than 15 ppm.

## (2) Solids

The laboratory does tests to determine the total and suspended solids in a sample. The value for dissolved solids is determined by taking the mathematical difference between the total and suspended solids.

The concentration of suspended solids expressed in parts per million (ppm) is generally the most significant of the solids analyses in regard to stream water and outfall discharge qualities.

The OWRC's objective for discharge is a suspended solids concentration of not greater than 15 ppm.

## (3) Turbidity

Turbidity is caused by the presence of suspended matter such as clay, silt, finely divided organic matter, plankton and other microscopic organisms in water or outfall discharges. It is an expression of the optical property of a sample and the results are reported in "Turbidity Units".

## (4) Phenolic Compounds

Phenols and phenolic equivalents were measured by the Gibbs method with modifications. Phenols react with chlorine to produce intensely aromatic compounds. These compounds, even when highly diluted, may give taste and odour to the water which is variously described as medicinal, chemical or iodoform. Phenols taint fish and are toxic to fish, depending on the concentration. Normal

water contains no phenolic compounds.

(5) Alkyl-Benzene Sulfonate (ABS)

The alkyl benzene sulfonate portion of the anionic detergents is reported in ppm. The test is generally employed to detect the presence of domestic wastes. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in domestic waste discharges.

VILLAGE OF BURK'S FALLS

WATER POLLUTION SURVEY

TABLE NO. 1

SAMPLING POINT NO.	DESCRIPTION	DATE	5-DAY	TOTAL (PPM)	SUSP. (PPM)	DISS. (PPM)	ANIONIC DETERGENTS		PHENOLS IN PPB	M.F. COLIFORM COUNT PER 100 ML	EST. DWF
			BOD (PPM)				AS	ABS			
MH-77.4	STREAM AT RIVER - END OF HIGH ST. (RIVER BACKING UP TO STREAM).	JUNE 28/67	0.6	68	8	60				5,200	
		SEPT. 27/67									
MH-77.7W	OUTFALL ACROSS FROM SHELL STATION.	JUNE 28/67	260	660	254	406	14.0		300	650,000,000	3 GPM
		SEPT. 27/67	570	-	-	-	8.2		200	45,000,000	
MH-77.84P	PRIVATE DRAIN WEST SIDE OF HWY. 11.	JUNE 28/67								192,000	1 GPM
		SEPT. 27/67	NO FLOW								
MH-77.84W	OUTFALL ON HWY. 11 ACROSS FROM RIMES SUNOCO STATION.	JUNE 28/67	5.8	202	15	187	0.5		40	2,500,000	2 GPM
		SEPT. 27/67	5.0	418	24	394	0.4		8	110,000	
MH-77.85W2	OUTFALL ACROSS FROM HIGH SCHOOL.	JUNE 28/67	19.0	342	170	178	0.7		24	50,000,000	1 GPM
		SEPT. 27/67	9.2	430	28	402	0.1		8	13,800	
MH-77.85W	OUTFALL FROM ESSO SERVICE STATION ACROSS FROM HIGH SCHOOL.	JUNE 28/67	NO FLOW								
		SEPT. 27/67	NO FLOW								
MH-77.6	RIVER AT DAM.	JUNE 28/67	0.5	102	7	95				760	
		SEPT. 27/67								950	
M-77.6-W	OUTFALL MAIN STREET STORM - ABOVE DAM.	JUNE 28/67	140	606	50	556	14.0		20	420,000,000	5 GPM
		SEPT. 27/67	1220	2892	936	1956	37		8	1,800,000	5 GPM

TABLE NO. 1 (CONTD)

SAMPLING POINT NO.	DESCRIPTION	DATE	5-DAY	TOTAL (PPM)	SUSP. (PPM)	DISS. (PPM)	ANIONIC DETERGENTS		PHENOLS IN PPB	M.F. COLIFORM COUNT PER 100 ML	EST. DWF
			BOD (PPM)				AS	ABS			
ML-78.28	STREAM UPSTREAM FROM HOLDING POND.	JUNE 28/67	2.3	94	20	74				1,000	
ML-78.26	LAUNDRY WASTES (SMITH COIN LAUNDRY) IN HOLDING POND.	JUNE 28/67	175	826	200	626	58.0			58,000,000	
		SEPT. 27/67	NO OVERFLOW								
ML-78.25	STREAM DOWNSTREAM FROM HOLDING POND.	JUNE 28/67	15	108	48	60	1.5			12,000,000	
ML-78.0	STREAM NEAR CON- FLUENCE WITH RIVER.	JUNE 28/67	2.7	148	30	118	0.3			8,900	
		SEPT. 27/67	1.3	92	2	90	0.9	0		900	
MS-78.9D	OUTFALL - DITCH AND STONE-BED TO RIVER.	JUNE 28/67	0.9	220	30	190				450	
		SEPT. 27/67	NO FLOW								
MS-79.0	RIVER AT BRIDGE ON SOUTH BRANCH YONGE STREET.	JUNE 28/67	0.4	92	1	91				260	
		SEPT. 27/67								320	
MS-79.1P	OUTFALL - LINE FROM SEPTIC TANK OF HOSPITAL (SUBMERGED) RIVER SAMPLE NEAR DITCH OUTFALL.	JUNE 28/67	0.4	48	2	46				670	SUBMERGED
		SEPT. 27/67	NOT LOCATED.								



